which favour the formation of martensite germinations and those which impede their formation. Comparison of the results relating to the influence of plastic deformation on the martensitic transformation in Fe-Ni-Mn and Fe-Cr-Ni systems leads to the conclusion that the intensity of the deformation caused changes of structural factors depends on the elastic-plastic properties of the austenite. The relation between the changes bringing about activation and braking of the martensitic transformations may differ depending not only on the degree of deformation but also on the elastic-plastic properties of the initial phase. As a result of this an unequal character of the effects of plastic deformation on the martensitic transformation

SOV/126-6-1-12/33

Influence of Preliminary Plastic Deformation on the Martensitic Transformation in the Alloy Fe-Cr-Ni

was observed in various materials.
There are 6 figures and 11 references, 9 of which are Soviet, 1 German, 1 English.

ASSOCIATION: Tsentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii (The Central Research Institute of Ferrous Metallurgy)

SUBMITTED: March 21, 1957

Card 8/8 1. Chromium-iron-nickel alloys--Transformations 2. Chromium-iron-nickel alloys--Deformation 3. Chromium-iron-nickel alloys--Heat treatment

YAMPOL'SKIY, Anatoliy Mikhaylovich; YEMEL'YANOVA, Ye.V., red.; SHERMUSHENKO, T.A., tekhn.red.

[Technology of applying oxide and phosphate coatings on metals] Tekhnologiia oksidirovaniia i fosfatirovaniia metallov. Leningrad, Lenizdat, 1960. 106 p. (MIRA 14:1)
(Metallic films) (Phosphate coatings)

Yampol'skiy, A.M.

69058

S/180/60/000/02/014/028
E111/E152

187500

AUTHORS: Zakharov, I.N., Maksimova, O.P., Nikonorova, A.I., Plenyannikova, I.M., and Yampol'skiy, A.M. (Moscow)

TITLE: Study of the Austenite Stabilization Effect in Phase Work Hardening

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Metallurgiya i toplivo, 1960, Nr 2, pp 93-103 (USSR)

ABSTRACT: The authors suggest that the important problem of gamma-phase stabilization should be considered to include the action of any factor which raises stability without changing the chemical composition of the austenite (Refs 1-8). One of these is internal work hardening due to the martensite transformation itself (Ref 9), which has been described by Golovchiner and Yu.D. Tyapkin, and by Golovchiner and Landa (Ref 10). In superinvar alloy Maksimova and Golovchiner found a "super-stabilization" effect for austenite with respect to the martensite transformation in subsequent cooling. In the present work the aim was to find: the influence of various degrees of phase work hardening on austenite stability; kinetics of isothermal transformation and the micro- and submicro-

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structure of austenite; the rules governing the removal of the effects of this phenomenon during subsequent annealing at gradually increasing temperatures; the changes in martensite transformation kinetics produced by phase work hardening in contrast to those produced by a different sort of effect, e.g. plastic deformation or high-energy particle irradiation. Two types of alloy were used: Fe-Ni-Mn (N23G3) and Fe-Cr-Ni (Kh17N8); their respective compositions being 0.06, 0.05% C; 23.45, 8.40% Ni; 3.30, -% Mn; -, 17.34% Cr. These had been studied widely in connection with austenite stability and fine crystal structure (Refs 5-7, 12). The investigation involved thermomagnetic, X-ray, microstructure and microhardness methods. The experimental conditions chosen in the present work are represented in Fig 1. Phase work hardening was produced by cooling to a low temperature followed by heating in a tin bath to the lowest temperature at which the reverse martensite transition is completed; the heating conditions ensured that a martensite mechanism governed the alpha to gamma

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transformation. Fig 3 gives the influence of degree of phase work hardening on the martensite transformation on subsequent cooling, while Figs 4 and 5 give for the nickel and the chromium alloys, respectively, isothermal martensite transformation curves for the initial and phase work-hardened states. Figs 6 and 7 give, for the same alloys respectively, the influence of phase work hardening on the starting rate of the isothermal martensite transformation (curves a) and on the overall effect of the transformation. In Fig 8 the influence of annealing temperature on the state of N23G3 subjected to different degrees of phase work hardening is shown, while Fig 9 shows effects for Kh17N8 alloy subjected to a 40% phase work hardening. Figs 10 and 11 show for the two alloys, respectively, microstructures at different stages of stabilization treatment and the nature of the martensite formed in subsequent cooling. The work showed that for both alloys phase work hardening depresses the "true" martensite point and the temperature range of the transformation, reducing its initial rate; external

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69658

S/180/60/000/02/014/028
E111/E152

Study of the Austenite Stabilization Effect in Phase Work Hardening

work hardening has different effects on the two alloys
(Ref 7). The observed changes in kinetics (similar to
those produced by stabilizing plastic deformation) can be
explained by the relatively high temperature required for
the reverse martensite transformation, which makes it
impossible to retain those changes in austenite fine
structure which favour formation of martensite nuclei.
Phase work hardening was found to produce extension of
structural faults in adjacent austenite zone, decrease in
martensite grain size and, to some extent, relative
stability of some austenite zones. In general, the
changes produced are very stable (disappearing at 1100-
1150 °C); their removal on raising the temperature takes
place in a stepwise manner.
There are 11 figures, 1 table and 15 references, of which
14 are Soviet and 1 is English.

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SUBMITTED: July 30, 1959

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place in a stepwise manner.
There are 11 figures, 1 table and 15 references, of which
14 are Soviet and 1 is English.

Card 4/4

SUBMITTED: July 30, 1959

S/148/60/000/008/003/018
A161/A029

AUTHORS: Chelyshev, N.A.; Kobyzev, V.K.; Plekhanov, N.G.; Bogdanova, N.G.; Yampol'skiy, A.M.

TITLE: Investigation of Metal Deformation During Rolling on a "750" Mill With the Use of Radioactive Isotopes

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. - Chernaya metallurgiya, 1960, No. 8, pp. 48 - 58

TEXT: The investigation was carried out with the use of S^{35} isotope added to a 7-ton ingot of 50Г (50G) killed steel during rolling on the "750" two-stand two-high billet mill of the Kuznetskiy metallurgicheskiy kombinat (Kuznetsk Metallurgical Combine). The mill has box passes in the first stand (Fig. 1) and a rhomb-square pass system in the second (Fig. 2). Three distinct zones were produced in metal by adding the isotope after the formation of a crystallized crust in the ingot mold, and again 10 min later after the formation of another solid layer. The first isotope addition had an activity of 950 mCu, the second the double activity, so as to obtain three zones: a non-radioactive outer layer and two inner zones of different radioactivity. The observed deformation in height

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Investigation of Metal Deformation During Rolling on a "750" Mill With the Use of Radioactive Isotopes

and width was very different in separate layers in both stands. The observations are discussed in detail and illustrated by figures and tables. Autoradiograms show the deformation after each of the 15 passes in the billet mill. The effect of the ratio h_{mean}/l (mean height of the deformation area to grip arc length) [Abstractor's note: Subscript mean is a translation from the Russian sr (srednIy)] and of the grip angle on the deformation was determined (noticed previously by A.I. Tselikov in Reference 2). The following conclusions were drawn: 1) The isotope method makes possible the observation of deformation without disturbing the process. 2) The deformation is distributed very non-uniformly in height and width in box passes as well as in the rhomb-square system. 3) The height deformation variations in separate metal zones in separate passes depend on changes of h_{mean}/l and grip angle. At high h_{mean}/l high deformation takes place in the outer zone and low deformation in the central zone at all grip angles; the deformation gradually evens out in all zones with reducing the h_{mean}/l ratio, and at a h_{mean}/l ratio lower than 1.7 the center is deformed more than the outer layer. An increasing grip angle at constant h_{mean}/l ratio raises the deformation in the outer layers, and hence the deeper metal layers are worked better with

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Investigation of Metal Deformation During Rolling on a "750" Mill With the Use of Radioactive Isotopes

smaller grip angle. 4) The local non-uniformity of deformation is considerable, particularly in the first half of the rolling process. This causes separated layers under the billet surface, particularly if the metal has a low plasticity. The magnitude of local deformation non-uniformity depends also on the h_{mean}/l ratio and the grip angle; when they increase, the deformation non-uniformity increases, and the detrimental effect of large grip angles is the stronger the higher is the h_{mean}/l ratio. 5) In high-deformation areas, changes of the free-spreading index $\frac{\Delta b}{\Delta h}$ are determined mainly by changes of the h_{mean}/l ratio. In passes with unrestricted widening, the width deformation also changes with the h_{mean}/l ratio and the grip angle, and positive as well as negative deformation is possible. 6) The pass system of the "750" mill must be changed. The following persons took part in the investigation: G.A. Sakharov (deceased), P.G. Marinin and I.V. Manchevskiy. There are 6 figures, 3 tables and 5 Soviet references.

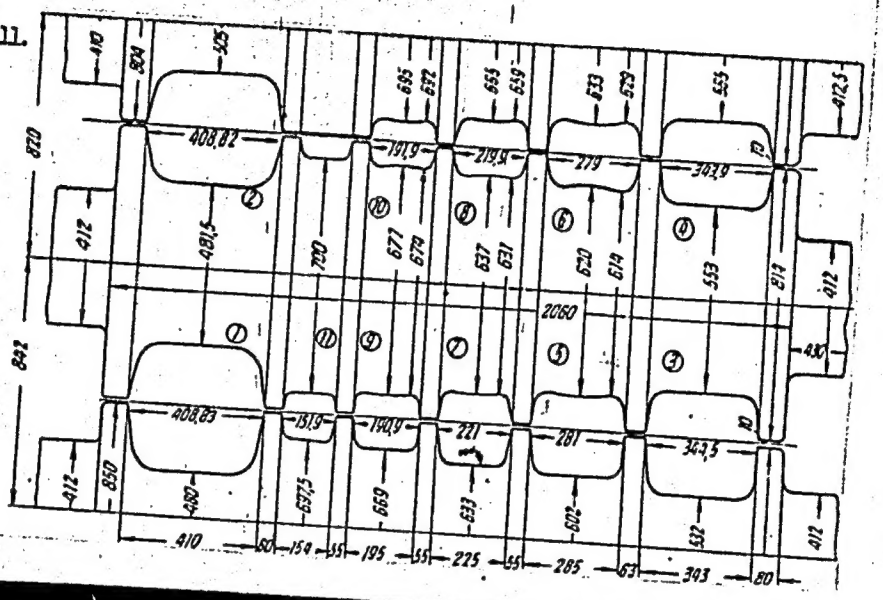
ASSOCIATION: Sibirskiy metallurgicheskiy institut (Siberian Metallurgical Institute)

SUBMITTED: November 30, 1959

S/148/60/000/008/003/018
A161/A029

Investigation of Metal Deformation During Rolling on a "750" Mill With the Use of Radioactive Isotopes

Figure 1. Calibration of the Passes of the First Stand of the Mill.



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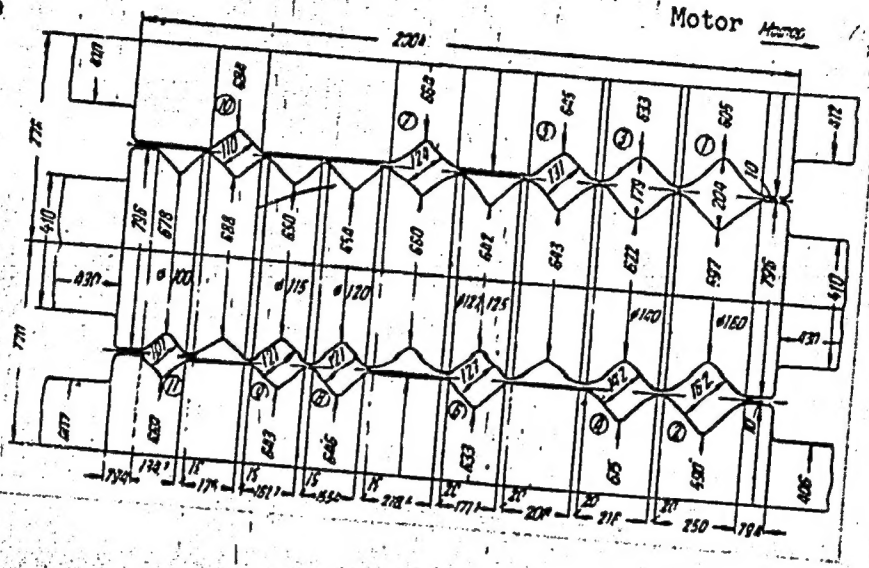
S/148/60/000/008/003/018
A161/A029

Investigation of Metal Deformation During Rolling on a "750" Mill With the Use of Radioactive Isotopes

Figure 2. Calibration of the Passes of the Second Stand of the Mill.



Card 5/5

S/080/60/033/007/010/020
A003/A001

AUTHOR: Yampol'skiy, A. M.

TITLE: The Determination of the Surface State of Metals Before Galvanic Coating

PERIODICAL: Zhurnal prikladnoy khimii, 1960, Vol. 33, No. 7, pp. 1567-1572

TEXT: The purity of metal surfaces and the absence of oxide films are necessary prerequisites for galvanic coating. The problem was studied for the case of aluminum. The samples were made of АД (AD) aluminum in the form of 20x10x1 mm rectangular plates. The surface was investigated by measuring the capacitance of a double electrical layer on the boundary of the metal with the solution after immersion of the metal into an electrolyte (Ref. 1). The capacitance was measured at 20°C with an oscillographic apparatus similar to that proposed by Kravtsov (Ref. 4) and shown in a diagram. Several surface states were compared: natural oxide film; artificial oxide film; surface etched in 15% NaOH solution; etched surface treated in a zincate solution with a concentration of 30 g/l and NaOH 140 g/l; surface with a galvanic zinc layer from a cyanide electrolyte. It was shown that surfaces with a natural

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S/080/60/033/007/010/020
A003/A001

The Determination of the Surface State of Metals Before Galvanic Coating

or artificial oxide film have a capacitance of 0.56 and 0.27 μF, respectively, i. e., it is far below the value of 20 $\mu F/cm^2$ which is the criterion for the absence of non-metallic films on a smooth homogeneous surface. In the presence of these films stable coatings cannot be obtained. Etching in alkali increases the capacitance to 250.0 $\mu F/cm^2$ making it non-homogeneous. This is far above the value desired. The sample closest to a pure metal surface is that obtained by zincate treatment, showing a capacitance of 25.5 $\mu F/cm^2$. There are 7 photographs, 1 graph, 1 diagram, and 7 references: 6 Soviet and 1 German.

ASSOCIATION: Leningradskiy Kirovskiy zavod (Leningrad Kirov Plant)

SUBMITTED: September 21, 1959

Card 2/2

S/080/60/033/008/007/013
A003/A001

AUTHORS: Fedot'yev, N.P., Yampol'skiy, A.M.

TITLE: Determination of the Adhesion Stability of Nickel Coatings on Aluminum and Its Alloys

PERIODICAL: Zhurnal prikladnoy khimii, 1960, Vol. 33, No. 8, pp. 1844-1849

TEXT: The methods for the quantitative determination of the adhesion stability of metal coatings (Refs. 1, 4) have serious drawbacks. A new simple method is described which can be used under industrial conditions. Samples with a protrusion are prepared. After coating, the protrusion is etched away, so that only the coating of the protrusion remains. The adhesion of the coating to the remaining part of the sample is tested by suspending weights on the sample. Two types of zincate solutions were tested: a solution containing 120 g/l NaOH, in which the adhesion stability was tested at Zn^{++} ion concentrations of 10, 30 and 50 g/l, based on the metal; and a solution with 400 g/l NaOH, in which the experiments were made at concentrations of 10, 65 and 150 g/l. It was shown that the stability is especially good in the 120 g/l solutions. The best results were obtained with a solution containing 120 g/l and 30 g/l Zn^{++}. The first immersion of the sample into the zincate solution should last 30-50 sec, the second immersion

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S/080/60/033/008/007/013
A003/A001

Determination of the Adhesion Stability of Nickel Coatings on Aluminum and Its Alloys

8-12 sec. In some plants salts of iron, copper, manganese, etc, are added to the solution. It was shown that the addition of $FeCl_3$ in the amount of 0.1 g/l to the solution mentioned reduces the adhesion stability by 40-50%. The method described can also be used for determining the adhesion stability of other coatings. There are 7figures, 5 tables and 5 Soviet references.

SUBMITTED: February 8, 1960

Card 2/2

YAMPOL'SKIY, A. M.

Cand Tech Sci - (diss) "Study of the possibility of improving the anticorrosion indices of parts made of aluminum and its alloys, and the production of hermetic soldered aluminum structures by means of galvanic coating with nickel and copper." Leningrad, 1961. 12 pp; (Ministry of Higher and Secondary Specialist Education RSFSR, Leningrad Order of Labor Red Banner Technological Inst imeni Lensovet); 180 copies; price not given; (KL, 6-61 sup, 229)

VAYNER, Yakov Vul'fovich; DASOYAN, Martin Avetisovich; YAMPOL'SKIY, A.M., inzh., retsenzent; KAN, V.I., inzh., retsenzent; AGUF, I.A., inzh., red.; VARKOVETSKAYA, A.I., red. izd-va; CHFAS, M.A., red. izd-va; PETERSON, M.M., tekhn. red.

[Equipment, automation and mechanization in electrochemical coating shops] Oborudovanie, avtomatizatsiia i mekhanizatsiia tsekhov elektrokhimicheskikh pokrytii. Moskva, Mashgiz, 1961. 404 p. (MIRA 14:10)

(Electroplating)

KRUGLOVA, Yekaterina Georgiyevna, inzh.; VYACHESLAVOV, Petr Mikhaylovich, dots., kand. khim. nauk; SMOTKINA, B.R., inzh., retsenzent; GRILIKHES, S.Ya., kand. tekhn. nauk, red.; YAMPOL'SKIY, A.M., red.; ONISHCHENKO, R.N., red. izd-va; BARDINA, A.A., tekhn. red.

[Control of electroplating baths and coatings] Kontrol' gal'vanicheskikh vann i pokrytii. Izd.2., dop. i perer. Moskva, Mashgiz, 1961. 146 p. (Bibliotechka gal'vanotekhnika, no.12) (MIRA 15:4)

(Electroplating—Equipment and supplies)

POPILOV, Lev Yakovlevich; KAMENETSKIY, M.P., kand. tekhn. nauk, retsenzent; VYACHESLAVOV, P.M., kand. khim. nauk, dots., red.; GRILIKHES, S.Ya., red. vypuska; YAMPOL'SKIY, A.M., inzh. red.; ONISHCHENKO, R.N., red. izd-va; BARDINA, A.A., tekhn. red.

[Electroplating] Gal'vanoplastika. Pod red. P.M.Viacheslavova. Moskva, Mashgiz, 1961. 62 p. (Bibliotechka gal'vanotekhnika, no.6) (MIRA 14:12)

(Electroplating)

YAMPOL'SKIY, Anatoliy Mikhaylovich,inzh.; NEMTSEVA,F.Ye.,inzh., retsenzent; VYACHESLAVOV, P.M., kand. khim.nauk, dots., red.; GRILIKHES,S.Ya., kand. tekhn. nauk, red.vypuska; FOMICHEV, A.G., red. izd-va; BORDINA, A.A., tekhn. red.

[Copper plating and nickel plating] Mednenie i nikelirovanie. Izd.2., dop. i perer. Pod red. P.M.Viacheslavova. Moskva, Mashgiz, 1961. 57 p. (Bibliotechka gal'vanotekhnika, no.4) (MIRA 14:12)
(Copper plating) (Nickel plating)

VYACHESLAVOV, Petr Mikhaylovich, kand. khim. nauk, dots.; GRILIKHES, S.Ya., kand. tekhn. nauk, red.; YAMPOL'SKIY, A.M., inzh., red. ONISHCHENKO, R.N., red. izd-va; BARDINA, A.A., tekhn. red.

[Alloy plating] Pokrytiia splavami. Izd.2., dop. i perer. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1961. 67 p. (MIRA 14:11)
(Bibliotechka gal'vanotekhnika, no.6)
(Electroplating) (Alloys)

PYANDRINA, Taisiya Nikolayevna; POPILOV, L.Ya., red.; YAMPOL'SKIY, A.M., inzh., red.; KUREPINA, G.N., red. izd-va; BARDINA, A.A., tekhn. red.

[Electrochemical processing of metals; electrolytic polishing] Elektrokhimicheskaia obrabotka metallov; elektroliticheskoe polirovanie. Pod obshchei red. L.IA.Popilova. Moskva, Mashgiz, 67 p. (Biblioteka elektrotekhnologa i ul'trazvukovika, no.4) (MIRA 15:4)

(Electrolytic polishing)

BIBIKOV, Nikolay Nikolayevich; MASLOV, N.N., kand.tekhn.nauk, retsenzent; VYACHESLAVOV, P.M., kand.khim.nauk, dotsent, red.; GRILIKHES, S.Ya., kand.tekhn.nauk, red.vypuska; YAMPOL'SKIY, A.M., inzh., red.; ONISHCHENKO, R.N., red.izd-va; BARDINA, A.A., tekhn.red.

[Metal deposition by currents of alternating polarity] Osazhdenie metallov na toke peremennoi poliarnosti. Izd.2., dop. i perer. Pod red. P.M.Viacheslavova. Moskva, Mashgiz, 1961. 68 p. (Bibliotechka gal'vanotekhnika, no.10). (MIRA 14:12)

(Electroplating)

CHERKEZ, Mikhail Borisovich; VORONITSYN, I.S., kand. tekhn. nauk, retsenzent; VYACHESLAVOV, P.M., kand. khim.nauk, dots., red.; GRILIKHES, S.Ya., kand. tekhn. nauk, red.; YAMPOL'SKIY, A.M., inzh., red.; SIMONOVSKIY, N.Z., red. izd-va; BARDINA, A.A., tekhn. red.

[Chromium plating and iron plating] Khromirovanie i zheleznenie. Izd.2., dop. i perer. Pod red. P.M.Viacheslavova. Moskva, Mashgiz. 1961. 83 p. (Bibliotechka gal'vanotekhnika, no.5) (MIRA 14:12)

(Chromium plating) (Iron plating)

VAYNER, Yakov Vul'fovich; KUSHNAREV, B.P., inzh., retsenzent; VYACHESLAVOV, P.M., kand.khim.nauk, dotsent, red.; YAMPOL'SKIY, A.M., inzh., red.vypuska; GRILIKHES, S.Ya., kand.tekhn.nauk, red.; POMICHEV, A.G., red.izd-va; BARDINA, A.A., tekhn.red.

[Equipment of electroplating plants] Oborudovanie gal'vanicheskikh tsekhov. Izd.2., dop. i perer. Pod red. P.M.Viacheslavova. Moskva, Mashgiz, 1961. 93 p. (Bibliotechka gal'vanotekhnika, no.11) (MIRA 14:12)
(Electroplating--Equipment and supplies)

YAMPOL'SKIY, A.M., red.; YABLONSKAYA, L.V., red.izd-va; ISLENT'YEVA, P.G., tekhn.red.

[Steel; collected articles] Stal'; sbornik statei. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1961. 492 p. (MIRA 14:12)
(Steel)

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22914
S/117/61/000/006/007/012
A004/A104

AUTHOR: Yampol'skiy, A. M.

TITLE: Oxide and phosphate coating of metals

PERIODICAL: Mashinostroitel', no. 6, 1961, 27-29

TEXT: The author presents a survey on the existing oxide and phosphate coating methods of ferrous and nonferrous metals. For the ornamental oxide coating of parts the following solutions are used:

Table 1

Constituents	Concentration in gram/liter				
Caustic soda	600-650	550-600	700-800	600-700	600-700
Sodium nitrate	100-200	-	200-250	120-150	200-250
Sodium nitrite	-	150-200	50-70	40-50	-
Potassium chloride	-	-	-	8-10	8-10
Potassium cyanide	-	-	-	-	10-20

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Oxide and phosphate coating of metals

The treatment temperature of all these solutions varies between 135 and 145°C, while the holding time is 15-20 minutes for carbon steels and up to 2 hours for alloyed steels. Anodic oxide coating of sheet steel should be carried out in two solutions, the first being composed of spent chrome-plating electrolyte diluted 4-5 times or in a solution of potassium bichromate. Then the parts are washed and oxide-coated in a 40% caustic soda solution, at a current density of 3-5 amp/dm^2 and a temperature of 65-80°C for 10-30 minutes. Some enterprises carry out oxide coating in acid solutions owing to the harmfulness of alkali solutions. To obtain oxide coats of great thickness high-temperature oxide coating is employed, while coats of 5-10μ are produced in a superheated steam atmosphere at 500-550°C and 0.3 atm pressure for 30 minutes. Springs and fastening parts are subjected to combined oxide coating and thermal tempering in a fusion composed of caustic soda, sodium nitrate, sodium nitrite and trisodiumphosphate. The oxide coating of heat-resistant steels is carried out in a fusion of caustic soda with salpeter additions at 450-500°C. During the high-temperature oxide coating of permalloys an electric insulating oxide film is formed. Transformer plates from 50HXC (50NKhS) permalloy are held for 1 hour at 570-600°, while 79HM(79NM) permalloy plates are held at 680-700°C. Artificial oxide coats on aluminum and its alloys can be obtained by the electrolytic or chemical method. In the case

Oxide and phosphate coating of metals

of the former, sulfuric acid and oxalic acid electrolytes are most widely used. If the sulfuric acid electrolyte is cooled to -5°C it is possible to carry out the oxide coating process over a longer time period and obtain an oxide coat of up to 0.10 mm thickness. Oxalic acid electrolytes containing other acids are used for electric insulation oxide coating. To obtain a breakdown voltage of up to 500 v the process is performed in a 3% oxalic acid solution at 15-20°C. An electrolyte composed of oxalic and sulfuric acids is used to obtain a breakdown voltage of 1,500-2,000 v. If Ti-salts are added to the oxalic acid electrolyte the oxide coat looks like enamel ("ematalirovaniye"). A comparatively cheap process is chemical oxide coating in a solution composed of orthophosphoric acid, chromium anhydride and acid postassium fluoride at 15-25°C, with 5-7 minutes holding. The oxide coating of magnesium alloys is used for the temporary protection of parts during mechanical working or for the permanent protection and priming prior to painting. For long service life it is expedient to use the chemical coating method in a solution composed of potassium bichromate, potash alum and acetic acid. The most suitable electrolytic method of oxide coating is by alternating current in an electrolyte containing acid ammonium fluoride, sodium bichromate and orthophosphoric acid. The oxide coating of copper is extensively carried out by anodizing in an electrolyte containing 80-120 g/l

Card 3/5

Oxide and phosphate coating of metals

caustic soda. Steel sheets are used as cathodes. The author mentions further the process of chemical oxide coating of copper, the oxide coating of brass and the electrolytic application of beryllium oxide to prevent silver and silver coatings from dulling. The phosphate coating of steel parts is carried out in a boiling 3% solution of the "Mazhef" preparation which results in the formation of a fine-crystalline film of manganese and iron phosphate. This film is insoluble in water, microporous and absorbs various lubricants and paint and varnish coatings well. The author describes the phosphate coating process of ferrous metals with and without preheating, comments on the phosphate coating of the nonferrous metals zinc, aluminum, aluminum and magnesium alloys and presents a table with the solutions applied for the phosphate coating of zinc parts.

S/032/61/027/001/010/037
B017/B054

AUTHORS: Fedot'yev, N. P. and Yampol'skiy, A. M.

TITLE: Method of Determining the Cohesion of Galvanic Coats

PERIODICAL: Zavodskaya laboratoriya, 1961, Vol. 27, No. 1, pp. 45-46

TEXT: The authors developed a method for the quantitative determination of the cohesion of galvanic coats by determining the force needed to separate a nickel coat from an aluminum surface. The galvanic coat does not separate simultaneously on the entire surface but only at the separating lines between the galvanic coat and the metal. Metal is galvanically deposited on an aluminum sheet. Part of the aluminum sheet is etched off with 20% HCl. An apparatus determines the weight needed to detach the galvanic coat from the sheet remaining after etching. The method is suited for determining the cohesion of nickel and copper coats on metals and alloys, in particular Al and Al alloys. There are 2 figures.

ASSOCIATION: Kirovskiy zavod (Kirov Plant)

Card 1/1

FEDOT'YEV, N.P., prof.; IL'IN, V.A.; CHERNOZATONSKAYA, I.N.; YAMPOL'SKIY, A.M., kand. tekhn. nauk, red.; SHILLING, V.A., red.izd-va; GVIRTS, V.L., tekhn. red.

[Electrodeposition of silver from solutions of cyanide-free complex salts]Elektroosazhdenie serebra iz rastvorov netsianistykh kompleksnykh solei. Leningrad, 1962. 18 p. (Leningradskii dom nauchno-tekhnicheskoi propagandy. Obmen peredovym opytom. Seriia: Zashchitnye pokrytiia, no.8)
(MIRA 16:3)

(Silver plating)

YAMPOL'SKIY, Anatoliy Mikhaylovich; IL'IN, Vitaliy Alekseyevich; DANILOV, I.A., inzh., retsenzent; CHERKEZ, M.B., kand. tekhn. nauk, red.; ONISHCHENKO, R.N., red. izd-va; SHCHETININA, L.V., tekhn. red.

[Brief handbook of electroplating and electroforming] Kratkii spravochnik gal'vanotekhnika. Moskva, Mashgiz, 1962. 244 p. (MIRA 15:7)

(Electroplating--Handbooks, manuals, etc.)

IL'IN, Vitaliy Alekseyevich; BOGORODITSKAYA, V.A., inzh., retsenzent; VYACHESLAVOV, P.M., kand. khim. nauk, dots., red.; GRILIKHES, S.Ya., kand. tekhn. nauk, red.; YAMPOL'SKIY, A.M., inzh., red.; DUBUSOVA, G.A., red. izd-va; BARDINA, A.A., tekhn. red.

[Tin and lead plating]Luzhenie i svintsevanie. Pod red. P.M. Viacheslavova. Izd.2., dop. i perer. Moskva, Mashgiz, 1961.33 p. (Bibliotechka gal'vanotekhnika, no.3) (MIRA 16:2)
(Tin plating) (Lead plating)

IL'IN, Vitaliy Alekseyevich; BRUK, E.S., inzh., retsenaent; VYACHESLAVOV, P.M., kand. khim.nauk,dots., red.; GRILIKHES, S.Ya., kand.tekkhn. nauk, red.; YAMPOL'SKIY, A.M., inzh., red.; MITARCHUK, G.A., red. izd-va; BARDINA, A.A., tekhn. red.

[Zinc and cadmium plating]TSinkovanie i kadmirovanie. Pod red. P.M.Viacheslavova. Izd.2., dop. i perer. Moskva, Mashgiz, 1961. 48 p. (Bibliotechka gal'vanotekhnika, no.2) (MIRA 16:2)
(Zinc plating) (Cadmium plating)

VAYNER, Ya.V.; DASOYAN, M.A.; YAMPOL'SKIY, A.M., kand. tekhn.nauk, retsenzent; KAN, V.I., inzh., retsenzent; LYZLOV, Yu.V., kand. khim. nauk, red.; VARKOVETSKAYA, A.I., red.izd-va; PETERSON, M.M., tekhn. red.

[Technology of electrochemical coatings]Tekhnologiia elektrokhimicheskikh pokrytii. Moskva, Mashgiz, 1962. 468 p. (MIRA 15:12)

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YAMPOL'SKIY, A.M.

Chemical methods for marking parts. Mashinostroitel' no.1: 35 Ja '62. (MIRA 15:1)
(Marking devices)

PUGACHEV, A.V., inzh.; BASHKOV, V.A., inzh.; YAMPOL'SKIY, A.M., inzh.;
Prinimali uchastiye: SHIRINKIN, Ye.N., inzh.; BARASH, L.I., inzh.;
STROKOV, I.N., inzh.

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195-197 Mr '63. (MIRA 16:5)
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YAMPOL'SKIY, Anatoliy Mikhaylovich, kand. tekhn.nauk; IL'IN, V.A., red.

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YAMPOL'SKIY, A.M.; IVANOVA, M.V., inzh., retsenzent

[Metal pickling] Travlenie metallov. Moskva, Mashinostroenie, 1964. 110 p. (MIRA 18:3)

NUSS, Pavel Aleksandrovich; YAMPOL'SKIY, Aron Naumovich; NAUMOV, I.I., nauchn. red.; BOGINA, S.L., red.; BOROVNEV, N.K., tekhn. red.

[Savings materials at construction sites] Ekonomiia materialov na stroikakh. Moskva, Stroiizdat, 1964. 115 p. (MIRA 17:3)

YAMPOL'SKIY, A.S. (Ivanovo)

Effect of pain stimulation on the composition of gastric juice.
Pat.fiziol. i eksp.terap. 2 no.6:51-52 N-D '58. (MIRA 12:1)

1. Iz kafedry normal'noy fiziologii (zav. - prof. S.S. Serebrenikov) Ivanovskogo meditsinskogo instituta.

(PAIN, physiol.
eff. of pain stimulation on composition of gastric juice in dogs (Rus))
(GASTRIC JUICE,
composition, eff. of pain stimulation in dogs (Rus))

YAMPOL'SKIY, A.S.

Effect of pituitrin on the activity of the gastric glands. Biul. eksp. biol. i med. 49 no.2:32-36 F '60. (MIRA 14:5)

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(PITUITARY EXTRACT) (GASTRIC JUICE)

YAMPOL'SKIY, A.S.

Participation of the medullary substance of the adrenals in the reaction of the gastric glands to a pain stimulus. Biul. eksp. i med. 3[i.e.53] no.3:30-34 Mr '62. (MIRA 15:4)

1. Iz kafedry normal'noy fiziologii (zav. - prof. S.S.Serebrenikov) Ivanovskogo meditsinskogo instituta (dir. - dotsent Ya.M.Romanov) Predstavlena deystvitel'nym chlenom AMN SSSR V.V.Parinym.
(STOMACH) (PAIN) (ADRENAL GLANDS)

YAMPOL'SKIY, A. YA., jt. au.

Baidiuk, P. V.

Mechanization of cotton storing places. Moskva, Gos. izd-vo sel'khoz. lit-ry, 1951. 38 p. (54-35312)

TS1583.B3

YAMPOL'SKIY, A.Ya.

Using storage battery loading trucks in cotton mills. Tekst.prom. 14 no. 11:48-50 N '54. (MLRA 8:1)

1. Nauchnyy sotrudnik TsNIIKhProma.
(Material handling) (Cotton) (Fork lift trucks)

Translation D-24135, 1954

YAMPOL'SKIY, A.Ya., inzhener.

Transporting raw cotton without packing. Mekh.trud.rab. 11 no.1:33-36 Ja '57. (MLRA 10:5)

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(Cotton--Transportation)
(Loading and unloading)

YAMPOL'SKIY, A.Ya., nauchnyy sotrudnik

Effect of high moisture content on the volume weight of raw cotton. Tekst.prom. 20 no.8:21-23 Ag '60. (MIRA 13:9)

1. TSentral'nyy nauchno-issledovatel'skiy institut khlopkovoy promyshlennosti.
(Cotton--Moisture content)

YAMPOL'SKIY, A.Ya., inzh.

Effect of the raw cotton moisture on its basic mechanical properties in transportation. Sbor.nauch.-issl.rab.TSNIIKHProma no.9:3-37 '62. (MIRA 17:4)

YAMPOL'SKIY, B.

"Ukraine, my Ukraine." Sov.foto 22 no.6:14-16 Je 62.
(MIRA 15:6)

(Kiev--Exhibitions) (Photography--Exhibitions)

YAMPOL'SKIY, B.A.

Capron instead of bronze. Mashinostroitel' no.12:35 D '60.
(MIRA 13:12)

(Plastics)

YAMPOL'SKIY, Boris Borisovich; KOSTIN, V., red.; KLIMOVA, T., tekhn. red.

[Time is our ally] Nash drug - vremia. Moskva, Gos. izd-vo polit. lit-ry, 1961. 53 p. (MIRA 14:10)
(Russia—Economic conditions) (United States—Economic conditions)

MAR'YANOV, B.M.; SICH, A.S.[Sych, A.S.]; YAMPOL'SKIY, B.B.[IAmpol's'kyi, B.B.]; VELICHKA, I.O.[Velychka, I.O.], red.; POVOLOTSKIY, A.I. [Povolots'kyi, A.I.], red.; GAVRILETS', D.V.[Havrylets', D.V.], tekhn. red.

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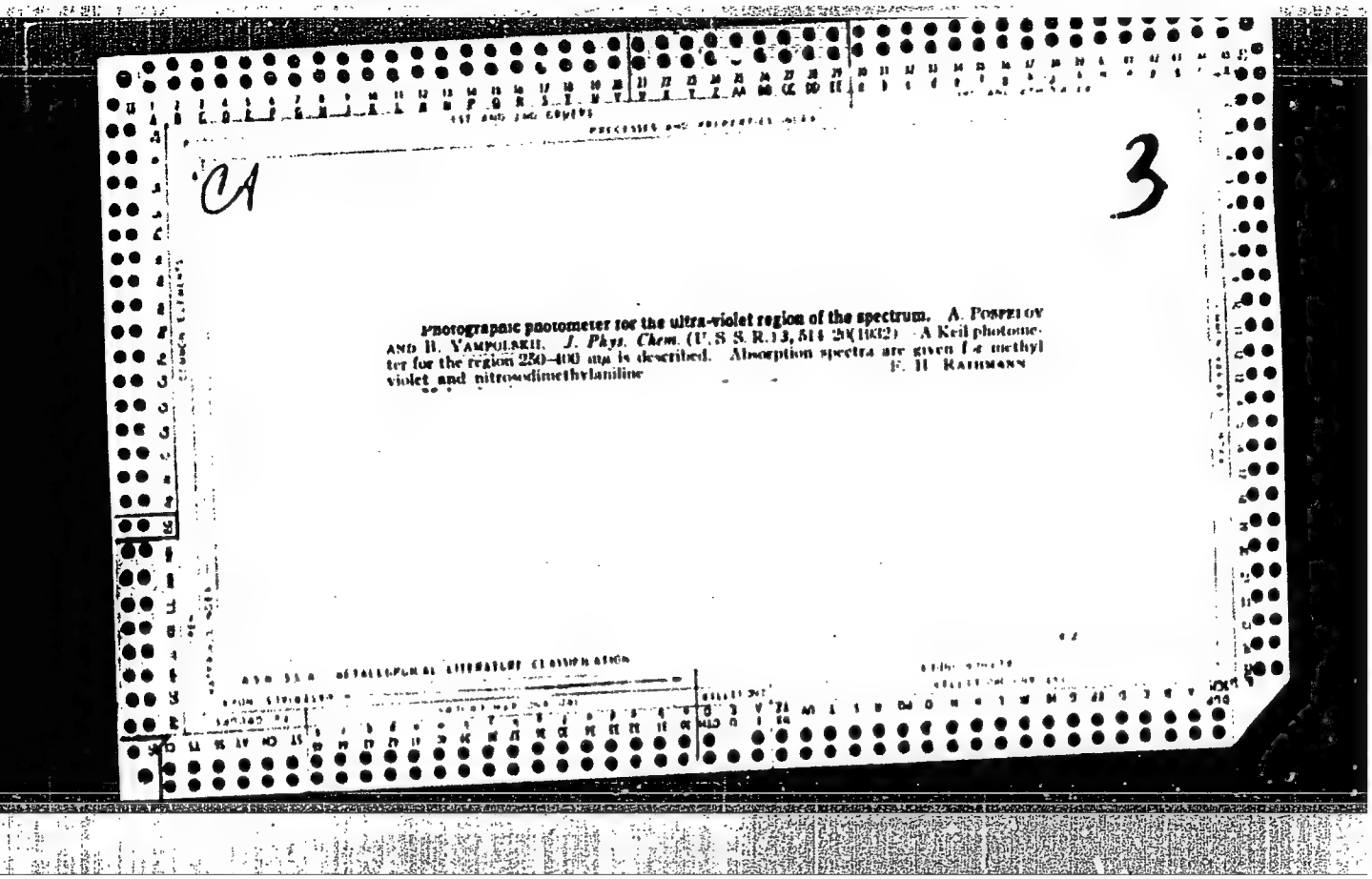

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photographic photometer for the ultra-violet region of the spectrum. A. Pospelov and B. Vampolskii. *J. Phys. Chem.* (U.S.S.R.) 13, 514-29(1939).—A Keil photometer for the region 250–400 mμ is described. Absorption spectra are given for methyl violet and nitrosodimethylaniline F. H. Rathmann

YAMPOL'SKIY, P. A.

PA 65/49T6

USSR/Chemistry - Instruments
Metallography

Nov/Dec 48

"A Study of the Structural and Mechanical Properties of Metallic Dispersion Systems by the Conic Plastometer Method," B. Ya. Yampol'skiy, P. A. Rebinder, Moscow Ord of Lenin State U imeni M. V. Lomonosov, Sci Res Inst of Chem, 9 pp

"Kolloid Zhur" Vol X, No 6

Describes an improved plastometer. Measurements showed a considerable decrease in the minimum tension with a rise of temperature. Concentrated amalgams of many metals proved to be dispersion systems of metallic crystals and their aggregates in a dispersed medium. Measured minimum tensions in lead amalgams with a 32-90% Rb content. Submitted 8 Jun 48.

65/49T6

YAMPOL'SKIY, B. YA.

PA 45/49T8

USSR/Academy of Sciences
Biography

Mar/Apr 49

"On the Fiftieth Anniversary of the Birth, and Twenty-Fifth Anniversary of the Scientific Activity, of Academician P. A. Rebinder," M. P. Volarovich, B. Ya. Yampol'skiy, 1½ p

"Kolloid Zhur" Vol XI, No 2

Summarizes career of P. A Rebinder. His chief fields are (1) study of the effect of adsorption layers on properties and behavior of dispersed systems and colloidal materials, and (2) deformation process in solids. Includes photograph.

45/49T8

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Effect of the dispersity (microstructure) of a metal on its plastic flow in active media. T. A. Amfiteatrova and B. Ya. Yampol'skii (M. V. Lomonosov State Univ., Moscow). *Doklady Akad. Nauk S.S.S.R.* 82, 735-8(1952).—Relative elongations $\epsilon = 100\ \Delta l/l_0$ and rates of creep $V = d\epsilon/d\tau$ were measured on polycryst. pure Cu wires of 0.8 and 2.0 mm. in diam. and on polycryst. pure Al wires of 1.0 and 1.3 mm. in diam. and of initial length 180 mm. The main grain size was controlled from 0.10 to 0.0060 mm. for Cu and from 0.22 to 0.060 mm. for Al, by appropriate thermal treatments. All samples were given an initial elongation of about 3% to ensure uniform initial strengthening. With a medium grain size (about 0.1 mm. for Cu and 0.15 mm. for Al), V was markedly greater when the samples were deformed in an active medium than when in air or in nonpolar kerosine; in the 2 latter, inactive media, V was the same. The beneficial effect of surface-active substances on the plastic flow, heretofore observed on single crystals, is thus shown to hold also for polycryst. metals. The optimum concns., in sols. in kerosine, are, BuOH 2.25, $C_6H_{13}OH$ 0.75, $C_{11}H_{23}OH$ 0.30, cetyl alc. 0.020, oleic acid 0.020, Na dioctylsulfosuccinate 0.010 mole/l. At these optimum concns., the strengthening coeff. λ, as defined by Likhtman (*C.A.* 45, 7403g) is lowered by about 10–12%, and the viscosity η by a factor of 2; the creep limit P_0 is lowered. In terms of the grain size, in a 0.02 *M* sols. of cetyl alc., there is no effect with fine-grained metals; it becomes noticeable only when the mean grain size attains some 4% of the diam. of the sample, and is max. with a grain size of 20–25% of that diam. Log V_a/V_0, where the subscripts a and 0 refer to an active and an inactive medium, resp., is a function only of $D = \delta/d$, where δ = mean diam. of the grain, and d = diam. of the wire. This is taken to indicate that the surface-active substance penetrates in the main only through microcracks produced by the deformation in superficial grains, and does not penetrate at any substantial rate into the intergranular space. The effect is further observable only with samples preliminarily etched, act in the presence of oxide films.

N. Thon

USSR/Chemistry - Surface-Active Agents May 52

"The Effect of Surface-Active Agents on the Plastic Flow of Polycrystalline Metals," T. A. Amfiteatrova, B. Ya. Yampol'skiy, Moscow State U imeni M. V. Lomonosov

"Dok Ak Nauk SSSR" Vol 84, No 2, pp 305-308

Samples of copper and aluminum wire were placed under tension in solns contg varying concns of surface-active agents (solns of alcs, oleic acid, sodium dioctylsulfosuccinate, a

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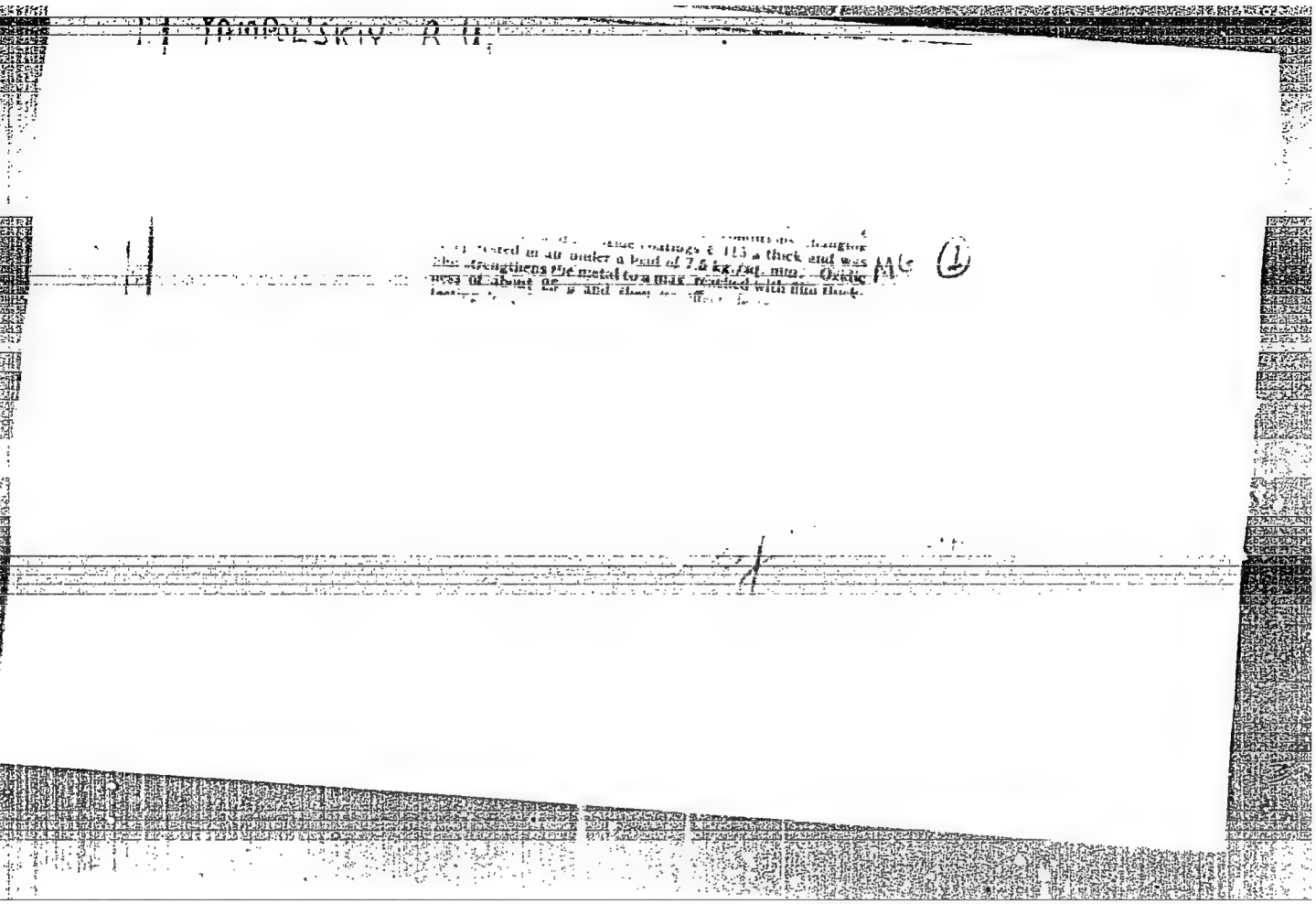
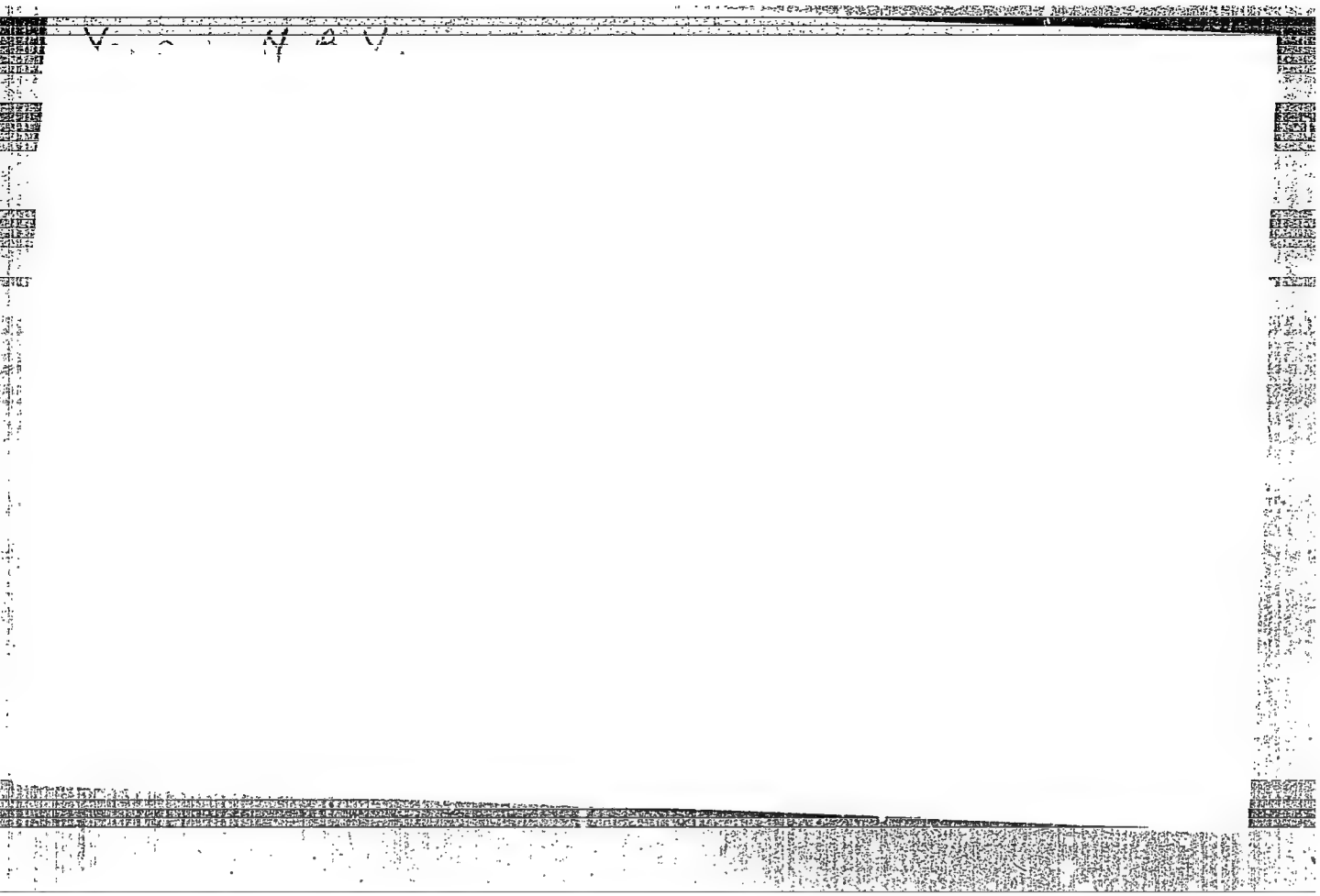
and butyl stearate). The effect of adsorption was found to be greatly dependent on the concn of the soln. The optimum concn giving the max effect due to adsorption (corresponding to the greatest development of microscopic cracks) was found to decrease with increasing mol wt for alcs. The max effect of the medium on the deformation of the metal was found to take place within a narrow range of strains. Presented by Acad P. A. Rebinder 6 Mar 52.

231T7





YAMPOL'SKIY, B. Ya.; Solov'yeva, Ye. S.

"Study of the Kinetics of Hydrolysis and the Diffusion of Hydrates of Clinker Minerals in Weak Suspensions by the Electrical Conduction Method" (Issledovaniye kinetiki gidroliza i pastvoreniya gidratov klinkernykh mineralov v razbavlennykh suspenziyakh metodom elektroprovodnosti) from the book Trudy of the Third All-Union Conference on Colloid Chemistry, Iz AN SSSR, Moscow, 1956

(Report given at above Conference, held in Minsk 21-24 Dec 53)

Authors in Chair of Colloid Chemistry, Moscow State University

YAMPOL'SKIY, B. Ya.

USSR/Colloid Chemistry Dispersion Systems B-14

Abs Jour : Ref Zhur - Khimiya, No 8, 1957, 26394

Author : B.Ya. Yampol'skiy
Title : Study of Structure Formation in Concentrated Suspensions by Electrical Conduction Method.

Orig Pub : Kolloid. zh., 1956, 18, No 5, 621-625

Abstract : The dependence of electrical conductivity (λ) on concentration (c) and the change of λ with the time in sediments formed by suspensions of pure, preliminary calcined graphite (G) in benzene (I), toluene (II), kerosine (III), and non-polar vaseline oil was studied. The measurement of the strength (P_m) of the sediment structure was carried out by the method of displacement of a plate with grooved surface simultaneously with the determination of λ . λ and Pm increase together with settling and attain constant values in 10 to 15 min. time, but shaking of the vessel sharply decreases λ and P_m, the constant values being restored again later. λ rises in proportion to c beginning from the weakest concentrations, while P_m appears only at c equal to about 8%. At concentrations less than 20%, λ and P_m are rising sharply, which is explained by the thickening of

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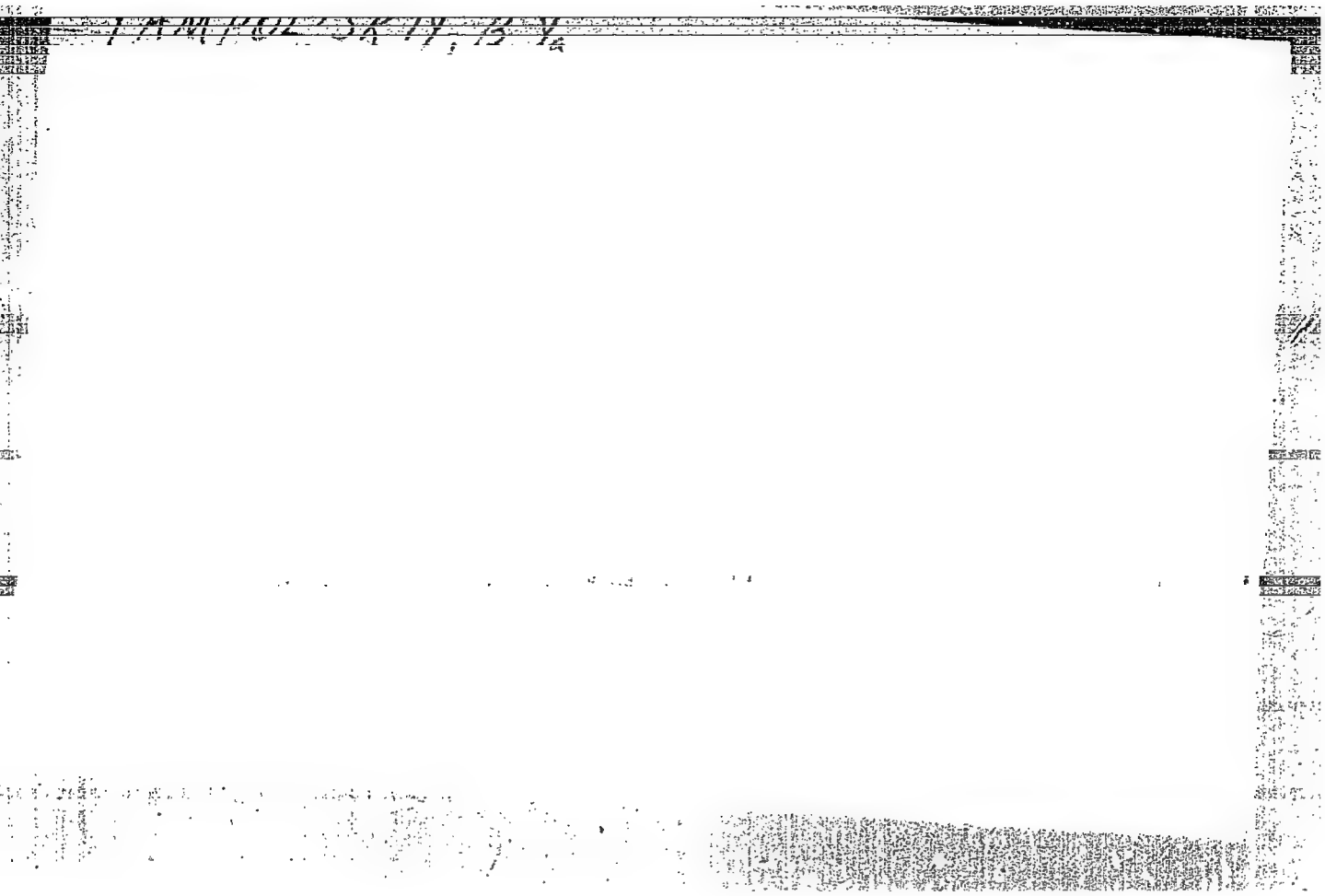

YAMPOL'SKIY, B. Ya.

Category : USSR/Solid State Physics - Mechanical Properties of Crystals and Crystalline Compounds. E-9

Abs Jour : Ref Zhur - Fizika, No 3, 1957, No 6782

Author : Goryunov, Yu.V., Yampol'skiy, B.Ya.
Inst : Moscow University, USSR
Title : On the Influence of Oxide Films on the Adsorption Effect of the Relieving Plastic Deformations in Polycrystalline Aluminum,.

Orig Pub : Dokl. AN SSSR, 1956, 107, No 6, 827-829

Abstract : The authors consider the effect of oxide films and surface-active substances on the deformation of polycrystalline aluminum under constant load. A solution of surface-active substance (n-butyl alcohol) increases the deformation in the initial speed of flow of aluminum compared with the deformation in air both in aqueous solutions, i.e., in the presence of an oxide film, and in a solution of KOH (1 -- 2n), when there is no oxide film. In a KOH solution the oxide film is rapidly fully fissolved, while the dissolution of the metal takes place very slowly. The effect of the action of the

Card : 1/2

AUTHOR: Yampol'skiy, B.Ya. and Amfiteatrova, T.A. 119

TITLE: Investigation of the deformation of metals at low stress rates. I. On certain relations governing creep of copper and aluminium. (Issledovanie deformatsiy metallov pri malykh napryazheniyakh. I. O nekotorykh zakonomernostyakh polzuchesti medi i alyuminiya.)

PERIODICAL: "Fizika Metallov i Metallovedenie," (Physics of Metals and Metallurgy), 1957, Vol.IV, No. 1 (10), pp. 131-140 (U.S.S.R.)

ABSTRACT: The results are described of investigations of the process of creep of copper and aluminium wires at various conditions of deformation showing the influence of the micro-structure of the metal and of the temperature. The investigations were carried out by the method of uni-axial stretching, at small constant stresses, of 0.50 mm dia. wires made of electrolytic 99.98% Cu and 1.0 mm dia. 99.98% Al wires of an initial length of 180 mm. By appropriate heat treatment polycrystalline specimens of various grain-sizes were obtained, i.e. 0.20 to 0.005 mm for copper and 0.22 to 0.06 mm for aluminium. The heat treatment was: two to three hours at 300 to 850 °C for Cu, and at 200 to 600 °C for Al without access of oxygen. The set-up is shown in Fig. 1, p.132 and the results are entered in nine tables and eight graphs. On the basis of the theory of creep proposed by V.I. Likhtman, the magnitudes characterising the properties of the copper and the aluminium

Investigation of the deformation of metals at low stress rates. I. On certain relations governing creep of copper and aluminium. (Cont.)

(the creep limit, the toughness and the coefficient of hardening) were determined for various conditions of deformation and preliminary work hardening of the specimens. It is shown that the mechanical properties of polycrystalline copper and aluminium depend on the grain-size of the metal and, with increasing dispersion, the creep limit, the toughness and the coefficient of hardening and also the elastic part of the deformation will increase. The influence of the temperature on the kinetics of the plastic deformation of the metal was also studied; with increasing temperature an intensive process of relaxation takes place in the deformed specimens, as a result of which the toughness, the yield point and the work hardening coefficient decrease. In addition to intragranular slip flow in the inter-crystalline layer takes place during the process of creep of the metal. The relative importance of the viscous flow increases with increasing temperature. 10 references, 8 of which are Russian.

Moscow State University
imeni M.V. Lomonosov.

Recd. Feb. 15, 1956.

YAMPOL'SKIY, B. Ya.; VINOGRADOV, G. V.; TRAPEZNIKOV, A. A.; VOYUTSKIY, S. S.;

"Problems of rheology and structure formation of the oleopholic systems."

report presented at the Fourth All-Union Conference on Colloidal Chemistry, Tbilisi, Georgian SSR, 12-16 May 1958 (Koll zhur, 20,5, p.677-9, '58, Taubman, A.B)

YAMPOL'SKIY, B. YA.

15(6)
AUTHOR: Rebinder, P. A., Academician SOV/20-59-1-5/57

TITLE: New Trends of Colloid Chemistry (Novyye puti razvitiya kolloidnoy khimii)

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Nr 1, pp 44-51 (USSR)

ABSTRACT: At present, colloid chemistry plays an especially important part in political economy as it is a physical-chemical science concerning substances of modern engineering. It is of great practical importance that at present it is possible to carry on uninterrupted transitions from lyophobic to lyophilic systems. Thus, it is possible to obtain technically important substances with the required structural-mechanical properties. The theory of highly molecular substances and their solutions has developed into an independent branch of colloid chemistry. The vitality of modern colloid chemistry is proved by the fact that it produces many new independent branches of sci ence. Further, the author describes the course of the 4th All-Union Conference of Colloid Chemistry which took place in Tbilisi on May 13-16, 1958. It was organized by the Otdeleniye khimicheskikh nauk Akademii nauk SSSR (Division of Chemical Sciences of the Academy of Sciences, USSR) and the Institut fizicheskoy khimii im. L. V. Pisarzhevskogo Akademii nauk Ukrainskoy SSR (Institute of Physical Chemistry imeni L. V. Pisarzhevskiy of the Academy of Sciences, Ukrainian SSR). Some and collaborators studied the process of the structure of active fillers on the processes of structural creation of polymers.
A. V. Dumanskiy with his school, A. A. Trapeznikov, G. V. Fisenko and collaborators examined the properties of clay solutions in connection with their structural peculiarities and the theory of coagulant lubricants.
The reports on questions of dispersion systems in polymers showed the utility of a combination of problems of colloid chemistry and the physical chemistry of polymers. The results of the Conference indicate that, besides limited examinations on individual scientific problems, comprehensive congresses are also useful and necessary, uniting the investigators and comprising the results of achievements in wide fields of science. There is 7 Soviet reference.

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SOV/126-7-5-23/25

AUTHORS: Amfiteatrova, T. A. and Yampol'skiy, B. Ya.

TITLE: Investigation of Deformation of Metals under the Influence of Low Stresses (Issledovaniye deformatsiy metallov pri malykh napryazheniyakh) II. Influence of an Adsorption-Active Medium on the Creep of Copper and Aluminium (II. Vliyaniye adsorbtsionno-aktivnoy sredy na polzuchest' medi i alyuminiya)

PERIODICAL: Fizika metallov i metallovedeniye, Vol 7, Nr 5, pp 782-789 (USSR)

ABSTRACT: The influence of surface-active media on the deformation of metals has been studied by observing the kinetics of plastic deformation of copper and aluminium wire in solutions of various surface-active substances in a non-polar carbonaceous medium. Specimens made from copper wire of 0.50 and 2.0 mm diameter, and aluminium wire of 1.0 and 1.3 mm diameter, were heat treated by the method described by Yampol'skiy et alii (Ref.1) in order to obtain a definite dispersion of the microstructure with an average grain size δ. Before plotting flow curves all specimens were elongated by 3% in order to ensure uniform hardening. The aluminium specimens were tested with the standard (atmospheric) oxide film on

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the metal surface, having a thickness of the order of several tens of Å. The copper specimens were etched with ammonium persulphate in order to give them a polished surface. The medium - non-polar kerosene - was thoroughly cleaned, the extent of cleaning being controlled by surface tension measurements ($\sigma \sim 50$ erg/cm^2). Oleic acid, butyl, hexyl, octyl and cetyl alcohols, as well as the preparation OT, were used as surface-active substances. The experiments were carried out in solutions of surface-active substances of various concentrations, and, for comparison, in a non-polar solvent under the same conditions. The flow diagrams for specimens under conditions of uniaxial straining were plotted at various stresses, which, however, were constant for a given experiment, close to the UTS of the deformed metal. The method for taking measurements and the instrumentation are accurately described by Yampol'skiy et alii (Ref.1). The specimen, held in the grips of a tensile machine, was placed in a glass tube filled with a solution of the surface-active substance, or the non-polar medium, in such a way that the entire working portion of the specimen was immersed in the

Investigation of Deformation of Metals under the Influence of Low Stresses II. Influence of an Adsorption-Active Medium on the Creep of Copper and Aluminium

liquid. The adsorption effect facilitating deformation of the metals investigated was estimated from the increase in the rate of flow of the specimens on straining in the active, as compared with a non-active, medium. The rate of flow was determined at equal degrees of elongation of the specimens, as the strength properties of the metal depend very largely on the degree of deformation. Measurements carried out in solutions of alcohols in non-polar kerosene at concentrations of from 0.050 mol/l. and above have shown that the rate of flow of both copper and aluminium specimens depends on the concentration of the surface-active medium in the solution. In Fig.1 typical curves of the kinetics of flow (creep) of a copper wire of 0.5 mm diameter in non-polar kerosene (lower curve) and in a solution of hexyl alcohol (0.75 mol/l. - upper curve) are shown. It was not possible to detect any difference in the rate of deformation of the specimens, under identical stresses, in air in the non-polar liquid. If the dependence of the initial flow rate of the metal in solutions of surface-active media is represented as

Investigation of Deformation of Metals under the Influence of Low Stresses II. Influence of an Adsorption-Active Medium on the Creep of Copper and Aluminium

a function of the logarithm of the concentration of the active medium in the solution, a clear relationship becomes evident exhibiting a sharp maximum at a definite concentration. For alcohols this relationship is shown in Fig.2. In Fig. 3 the change in flow rates of copper specimens during straining in a non-polar medium and in a solution of octyl alcohol (0.3 mol/l.) is shown. Fig.4 shows the dependence of the relative flow rate of copper specimens on the extent of deformation ε. Fig.5 shows the dependence of the adsorption effect, facilitating the deformation of metal, on the acting stress (copper in a solution of 0.02 mol/l. cetyl alcohol). In Fig.6 the dependence of the adsorption effect (relative increase in the flow rate of copper specimens) on the ratio of average grain size to specimen diameter is shown. The authors arrive at the following conclusions: 1. The adsorption effect facilitating deformation of polycrystalline copper and aluminium wire in uniaxial straining at low stresses in solutions of surface-active substances depends largely on the concentration of the surface-active substances.

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Investigation of Deformation of Metals under the Influence of Low Stresses II. Influence of an Adsorption-Active Medium on the Creep of Copper and Aluminium

2. The optimum concentration of the surface-active substance, corresponding to the maximum adsorption effect, decreases with increase in its molecular weight. On deforming specimens in an active medium (under optimum conditions) the limiting creep decreases by 14 to 16%, the coefficient of hardening decreases by 10 to 12% and the ductility decreases by approximately twice.

3. The magnitude of the adsorption effect depends on the degree of deformation of the metal. The greatest value of the effect is observed at a relative deformation of the order of 0.5% for copper and of 1% for aluminium specimens.

4. The magnitude of the effect also depends on the acting stress and disperseness (microstructure) of the metal.

There are 6 figures, 1 table and 5 Soviet references.

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SOV/126-- -7-5-23/25

Investigation of Deformation of Metals under the Influence of Low Stresses II. Influence of an Adsorption-Active Medium on the Creep of Copper and Aluminium

ASSOCIATION: Moskovskiy gosudarstvennyy universitet imeni M. V. Lomonosova (Moscow State University imeni M.V. Lomonosov)

SUBMITTED: January 29, 1958

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69-20-3-20/24

AUTHORS: U Shu-tsyu; Yampol'skiy, B.Ya.; Voyutskiy, S.S.

TITLE: An Investigation of Structures in Carbon Black Suspensions (Issledovaniye struktur v suspenziyakh sazhi) 3. The Effect of Polymer Additions to Concentrated Carbon Black Suspensions in a Hydrocarbon Medium (3. Vliyaniye dobavok polimerov k kontsentrirovannym sazhevym suspenziyam v uglevodorodnoy srede)

PERIODICAL: Kolloidnyy zhurnal, 1958, vol XX, Nr 3, pp 382-387 (USSR)

ABSTRACT: Carbon black is an active filler in rubber mixtures. It improves the mechanical properties of the final product. A relatively small quantity of carbon black causes a structural viscosity and Bingham shear stress in the rubber. Such a structure is formed by the macromolecules of the rubber, bound by adsorption with the carbon black particles. In the article, the influence of small quantities of polymer as additions on the structure formation of carbon black in a hydrocarbon medium is studied. In Figure 1, the dependence of the electric conductivity on the concentration of the carbon black as filler is shown. The structure formation in black suspensions with the addition of 1% natural rubber starts at relatively

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An Investigation of Structures in Carbon Black Suspensions. 3. The Effect of Polymer Additions to Concentrated Carbon Black Suspensions in a Hydrocarbon Medium

high concentrations of carbon black. In systems with the addition of polyisobutylene, or in pure xylene, the structure formation starts at lower concentrations. Figure 2 shows that the addition of a small quantity of natural rubber lowers the electric conductivity whereas polyisobutylene has no such effect. The formation and consolidation of the structure in a system with the addition of natural rubber takes place at higher concentrations than in systems with the addition of polyisobutylene or in those without addition. A small quantity of polyisobutylene does not cause any change of the shear stress for all investigated concentrations. These facts indicate that polyisobutylene is not adsorbed on black and is therefore no active addition in black suspensions.
There are 6 graphs, 1 table, and 14 references, 10 of which are Soviet, 3 English, and 1 French.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet, Kafedra kolloidnoy khimii (Moscow State University, Chair of Colloidal Chemistry)

SUBMITTED: July 19, 1957

Card 2/2

1. Rubber—Production 2. Carbon black—Applications

5(4) SOV/20-122-4-29/57

AUTHORS: Ostrovskiy, V. S., Amfiteatrova, T. A., Yampol'skiy, Z. Yu.

TITLE: On the Influence of Oxide Films and of an Adsorption-Active Medium on the Creep of a Copper Wire (O vliyanii okisnykh plenok i adsorbtsionno-aktivnoy sredy na polzuchest' mednoy provoloki)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol 122, Nr 4, pp 643-645 (USSR)

ABSTRACT: The explanation of the influence of thin oxide films on the mechanical properties of polycrystals is very important. The authors found out that the deformation of a polycrystalline copper wire is impeded if it is carried out in water. The samples - wires of electrolytic copper of 0,5 mm diameter - were tempered in order to get the grain dimensions (~0,1 mm) necessary for the optimum observation of the adsorption effect. The wires were stretched by a constant stress(below yield point) by means of a special apparatus. By a deformation in distilled water, the initial creep velocity and also the deformation accumulated up to a given instant of time decreases sharply with respect to the variations of these

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On the Influence of Oxide Films and of an Adsorption-Active Medium on the Creep of a Copper Wire

quantities as a result of experiments carried out in air. The curve for the creep in water is noticeably lower than the curve for the creep in air. If the samples are immersed in water, they are covered by a reddish oxide film the thickness of which amounts to some hundreds of Ångström. The formation of this oxide film is caused, apparently, by the dissolution of air oxygen in water. The above-discussed strengthening of the wires takes place only in the presence of oxide films. Surface-active substances (for instance, butyl alcohol) adsorbed on the metal from an aqueous medium, increase the creep velocity with respect to the creep in water and in air. According to the results of this paper, thin oxide films may exercise considerable influence on the mechanical properties of monocrystals and also of polycrystalline specimens. The diminishing of the creep velocity by the influence of thin oxide films on the surface of metals may be explained on the basis of dislocation hypotheses. The authors thank Ye. D. Shchukin for his useful advice. There are 1 figure, 1 table, and 11 references, 7 of which are Soviet.

SOV/2o-122-4-29/57

On the Influence of Oxide Films and of an Adsorption-Active Medium on the Creep of a Copper Wire

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova (Moscow State University imeni M. V. Lomonosov)

PRESENTED: May 30, 1958, by P. A. Rebinder, Academician

SUBMITTED: May 9, 1958

Card 3/3

S/069/62/024/003/006/006
B110/B138

AUTHORS: Yampol'skiy, B. Ya., Wu Shu-ch'iu

TITLE: Structuration mechanism of carbon black suspensions in a hydrocarbon medium

PERIODICAL: Kolloidnyy zhurnal, , v. 24, no. 3, 1962, 348 - 354

TEXT: Structuration in carbon black suspensions was studied by measuring the electrical conductivity, plotting the current-voltage curves, and by determining the stability and thixotropic properties. (1) Electrical conductivity: $I = cV^n$, where n is applied to estimate the type of disperse structure in the system rubber - carbon black, holds for carbon black - carbon black and carbon black - rubber - carbon - black bonds. Lampblack (type A) with 10% solid phase, and unpolar vaseline oil were used. The voltage was 0.01 - 100 v, the change in potential decrease was 0.025 - 250 v/cm, and the time of experiment was 10 - 20 sec at a temperature of 20°C. The electrical conductivity is constant for a comparatively small decrease of the potential, it increases from $\lambda_m \sim 2 \cdot 10^{-7}$ ohm^{-1}.cm^{-1} at 0.1 v,

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Structuration mechanism ...

to $\lambda_m \sim 6 \cdot 10^{-6}$ ohm^{-1}.cm^{-1} (maximum) at >60 v, then it is constant again. The curves at 20 and 40°C are similar (s-shaped). (2) Coagulation structure and thixotropy: The suspension of carbon black in hydrocarbons has good thixotropic properties. Destruction of the structure by stirring and its restoration can be examined by measuring the electrical conductivity which was found to increase ten times on evaporating the solvent (xylol) for 25 min at 20°C, whereas it decreased again to its initial value on absorption of the solvent. Electrons are assumed to penetrate the intermediate layer of the hydrocarbon medium, since the conductivity of dry carbon black exceeds that of the suspension by 5-6 decimal powers. The intermediate layer of the medium is diluted at active points by an increase of the potential gradient, its thickness reaches the critical value (10^{-7}-10^{-8} cm), the electrons penetrate the intermediate layer freely, and the electrical conductivity remains constant. A voltage increase allows the penetration of comparatively thick intermediate layers. Thus, the volt-ampere dependence does not follow Ohm's law. There are 4 figures.

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S/069/62/624/003/006/006
B110/B138

Structuration mechanism ...

ASSOCIATION: Moskovskiy universitet im. M. V. Lomonosova (Moscow University imeni M. V. Lomonosov)

SUBMITTED: July 1, 1961

Card 3/3

34754
S/020/62/142/003/022/027
B101/B110

15.9130

AUTHORS: Yampol'skiy, B. Ya., Wu Shu-ch'iu, and Rebinder, P. A., Academician

TITLE: Mechanism of structure formation in hydrocarbon suspensions of carbon black in connection with the problem of active rubber fillers

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 142, no. 3, 1962, 633-636

TEXT: The effect of temperature, admixtures of polymers or surface-active substances on the structure formation was studied on suspensions of lamp black type A (A) in nonpolar vaseline oil. The experiments were conducted 3 hrs after preparing the suspension, as soon as the specific electrical conductivity had attained its maximum, λ_m. The volt-ampere curves for d.c.voltages of 0.01 - 100 v (potential V = 0.025 - 250 v/cm) were plotted. In 10% carbon black suspension and at 20°C, the electrical conductivity remained constant with small and high V only. At V< 0.1 v, $\lambda_m \approx 2 \cdot 10^{-7}$ ohm^{-1}·cm^{-1}. With increasing V, λ_m increases rapidly (≈ 30fold)

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Mechanism of structure formation in...

and attains the value $\approx 6 \cdot 10^{-6}$ ohm^{-1}·cm^{-1} at V > 60 v. At 40°C, this course is even more distinct. The curves log I = f(log V) are S-shaped. They follow the equation $I = cV^n$ for low and high V (n = 1) only. In the inflection point, $n = \Delta \log I / \Delta \log V$ is 2 at 20°C, and 3 at 40°C. The coagulation structure of carbon black suspensions shows thixotropy. Destruction of the structure by shaking or mixing causes an immediate drop of λ. When standing at rest, structure formation takes place again. The limit shear stress of the structure can be accurately determined from the drop of λ in elastoplastometers of the Shvedov type with coaxial cylinders. In 30% carbon black suspensions in xylene it was found that the electrical conductivity increased during xylene evaporation due to structure formation, and dropped again during adsorption of xylene vapor. The experiment may be repeated several times (Fig. 3). Since suspensions of 30 - 40% carbon black have a low specific electrical conductivity ($\lambda_o \sim 10^{-5}$ ohm^{-1}·cm^{-1}) it is assumed that fluid interlayers are preserved between the carbon black particles which are thinner (10^{-7} - 10^{-8} cm) on the active (oxidized) portions of carbon black particles, so that the electrons can pass through (λ = const). With increasing V, the thicker fluid interlayers also become permeable to electrons, so λ increases.

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S/020/62/142/003/022/027
Mechanism of structure formation in... B101/B110

Small admixtures of surface-active substances strongly reduce λ: in a 10% carbon black suspensions, λ dropped to 1/10 of the initial value after adding 0.05% oleic acid. Coagulation is hindered in this connection. Small admixtures of adsorbable polymers also reduce λ and the strength of the coagulation structure. This, however, permits the admixture of large amounts of active filler favoring the development of the polymer (rubber) structure. Ye. D. Shchukin is mentioned. There are 3 figures and 8 references: 7 Soviet and 1 non-Soviet. The two references to English-language publications read as follows: A. Voet, Am. Ink Maker, 35, no. 4 (1957); Disc. Farad. Soc. 18, 151 (1954).

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova (Moscow State University imeni M. V. Lomonosov)

SUBMITTED: October 10, 1961

Card 3/4

L 27021-65 EWA(m)/EWP(t)/EWP(b) Pc-4/Pr-4 IJP(c) JD/JW

ACCESSION NR: AP5005392 S/0136/65/000/002/0016/0019

AUTHOR: Lezhnev, N. N.; Yanpol'skiy, B. Ya.; Lyalina, N. M.; Volodina, V. V.

TITLE: Simulation of the effect of carbon-black structures on the reinforcement of rubber

SOURCE: Kauchuk i rezina, no. 2, 1965, 16-19

TOPIC TAGS: rubber strengthening, carbon black structure, simulating system,

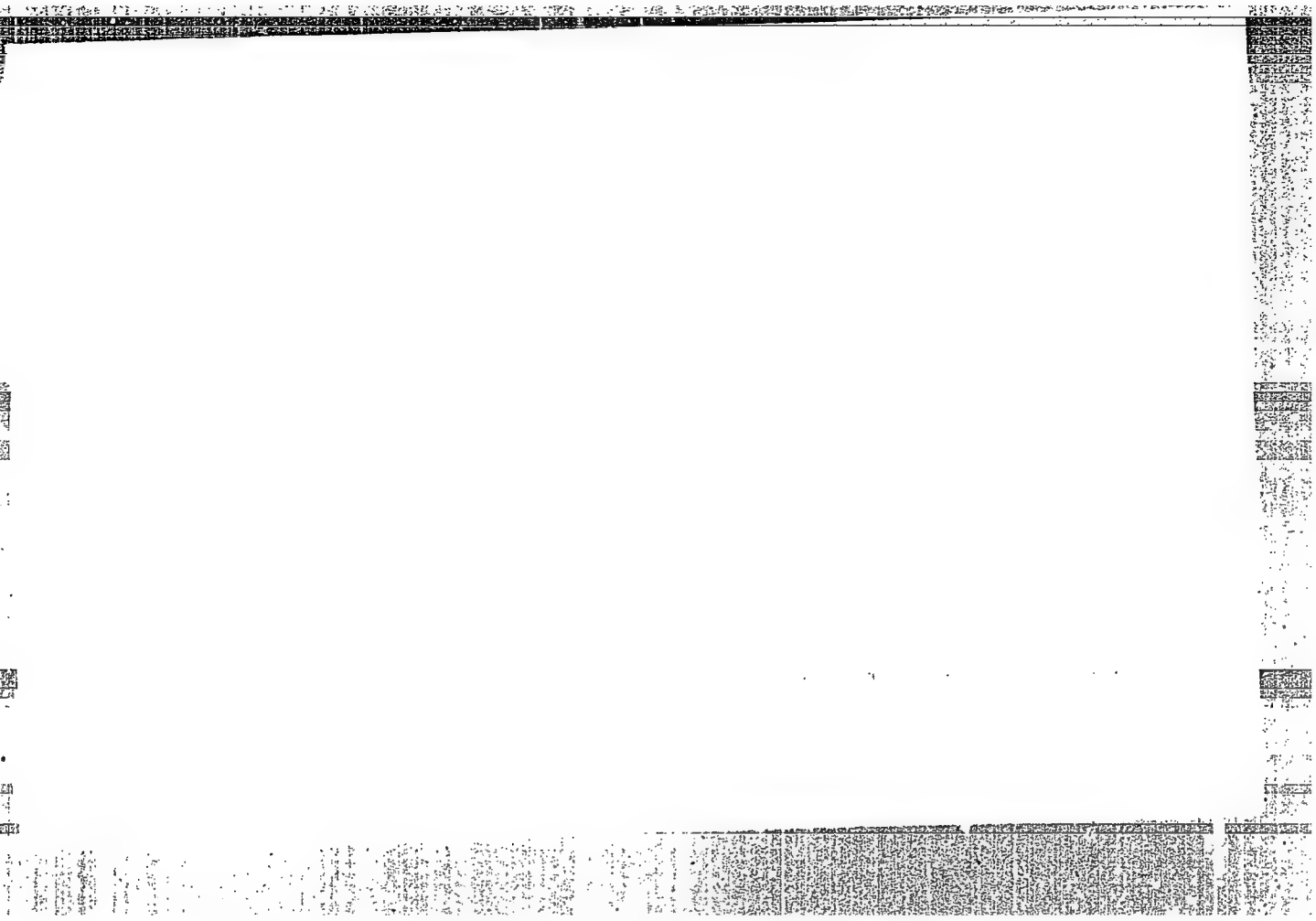
ABSTRACT: The experiments were carried out [illegible] The structure formation processes were determined from measurements of electrical conductivity and ultimate shearing stress. It was shown that carbon-black dispersions with thixotropic properties. The [illegible] not only to adsorption of the polymers onto the black, but also [illegible] of macromolecular structures which are oriented along the carbon-black chains to

Card 1/2

L 27621-65

ACCESSION NR: AP5005392

form a supramolecular network. Chemical or physical modification of the carbon-black surface changed the surface energy and sharply affected the structure of the



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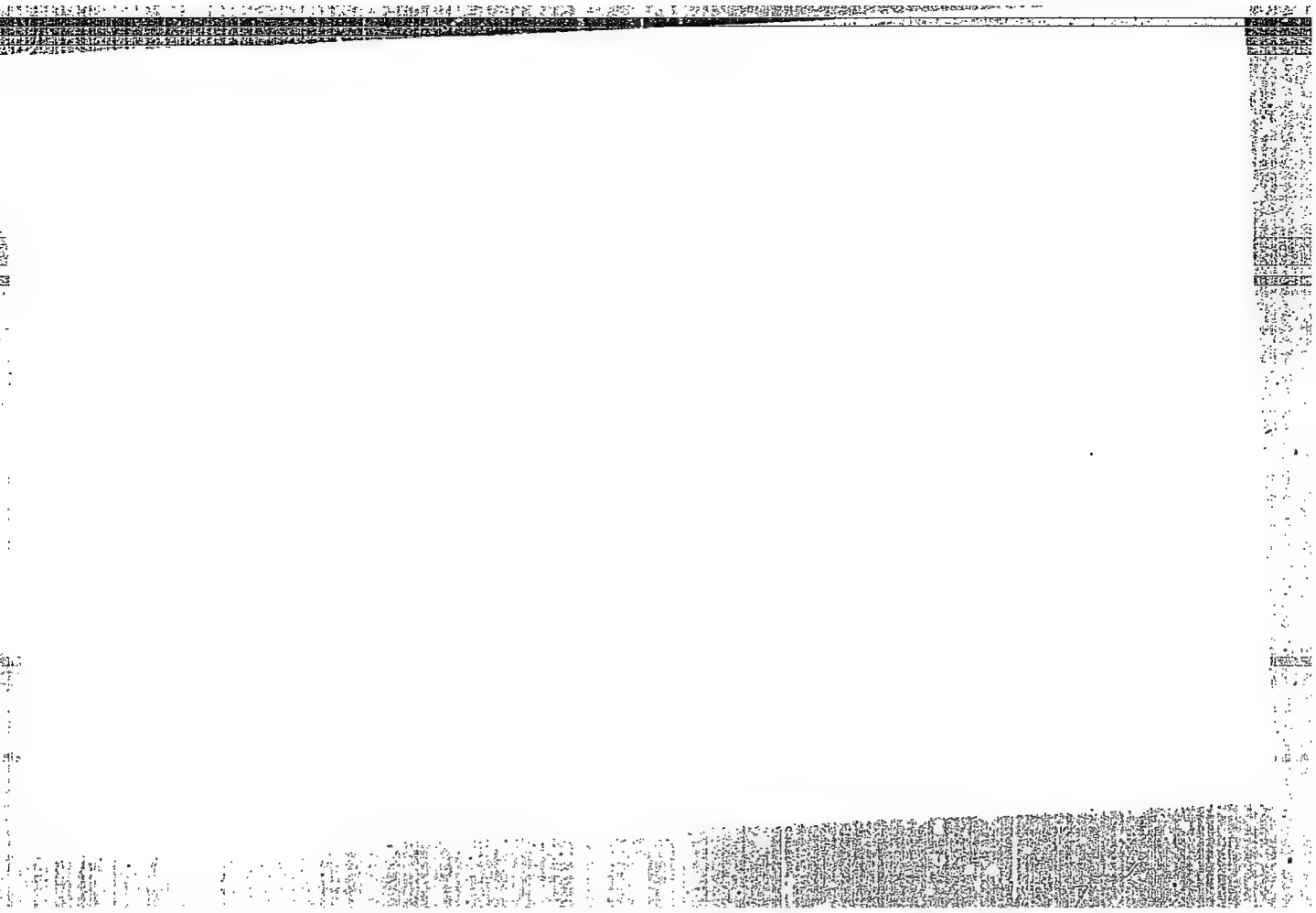

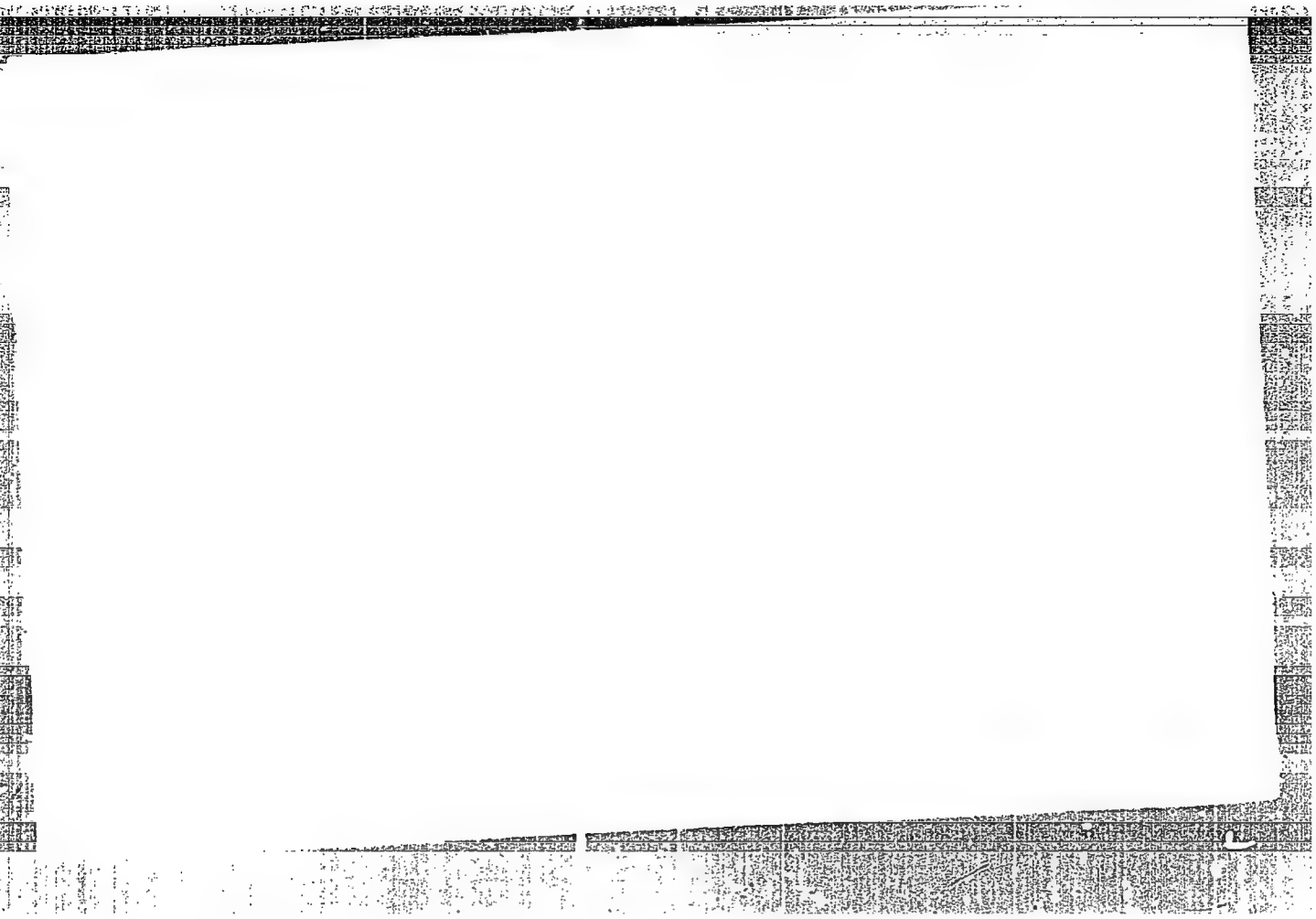

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R001962020019-1"

ZIL'BERMAN, Boris Zalmanovich; YAMPOL'SKIY, D.A., red.; SHIROKOV, M.M., tekhn. red.

[Simulation of electric drives] Modelirovanie elektroprivodov. Moskva, Gosenergoizdat, 1962. 78 p. (Biblioteka po avtomatike, no.48) (MIRA 15:5)

(Electric driving--Electromechanical analogies)

L 3981-66 EWT(d)/EEC(k)-2

ACCESSION NR: AP5022362 UR/0115/65/000/007/0060/0061
531.776

AUTHOR: Yampol'skiy, D. D.

TITLE: A stroboscope with controlled phase angle for the flash

SOURCE: Izmeritel'naya tekhnika, no. 7, 1965, 60-61

TOPIC TAGS: stroboscope, phase measurement, electronic measurement

ABSTRACT: The horizontal scanning system of an ENO-1 oscillograph is used as the master oscillator. The use of an oscillograph makes it possible to observe several of the processes being studied on the screen of the CRT. Besides this, a sawtooth voltage generator complete with slave sweep, internal and external synchronization may be built into the stroboscope circuit. The schematic diagram of the instrument is given and its operation is described. Adjustment of the phase angle of the flash can be checked on a phase meter built into the stroboscope. The instrument operates at frequencies up to 1000 cps. Orig. art. has: 1 figure.

ASSOCIATION: none

Card 1/2

L 3981-66

ACCESSION NR: AP5022362

SUBMITTED: 00

NO REF SOV: 000

ENCL: 00

OTHER: 000

SUB CODE: EC

EC

Card 2/2

YAGOLIEKIY, D.E. (Moskva); [illegible], T.A. (Moskva); SHIVAR, L.M. (Moskva); YASHCHENKO, A.F. (Moskva)

Experimental determination of the time constant of a d.c. motor with independent excitation. Elektrichestvo no.9:65-71 S '64. (MIRA 17:10)

S/0135/64/000/002/0031/0033

ACCESSION NR: AP4013294

AUTHORS: Gorban', P. N. (Engineer); Yampol'skiy, D. Z. (Engineer)

TITLE: Gas-electric cutting of stainless steels under purified nitrogen

SOURCE: Svarochnoye proizvodstvo, no. 2, 1964, 31-33

TOPIC TAGS: stainless steel, 1Kh18N9T stainless steel, steel cutting, gas electric cutting, oxygen producing unit K 30, nitrogen producing unit ZhAK 80, gas producing unit, ADSV automatic welder, brass TU TsM0, copper M1, copper M2, copper M3

ABSTRACT: The application of nitrogen in the gas-electric cutting of steel is desirable from the standpoint of economy and safety, but its content of oxygen (0.1-1.0%) is too high for proper cutting. This causes a rapid burning of the tungsten electrode and the disturbance of the cutting process. The authors suggest the use of two gas producing units: K-30 (oxygen) and ZhAK-80 (oxygen and nitrogen). These units were designed for the production of purified nitrogen and were used during the experimental gas-electrical cutting of stainless steel. The oxygen content of the purified nitrogen obtained was 0.05-0.02%. Steel sheets 10-75 mm thick and aluminum alloy sheets 60 mm thick served in the experimental cutting under purified nitrogen with a small admixture of argon. The results obtained

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ACCESSION NR: AP4013294

were good. The magnitude of the thermal effect zone (of the cut steel) was determined metallographically; this zone in stainless steel did not exceed 0.45-0.55 mm and in Al alloy--2-3 mm. It was established that the quality of work depended on the material cut and on the accuracy of nozzle production. In the device described here the internal and the external nozzles were supposed to be made of chromium-zinc brass TU TsMO or copper M1. Because the experimental plant did not have these materials, coppers M2 and M3 were used in nozzle production. It was established that this cutting method was very economical. The expenditure of the purified nitrogen varied with the thickness of the metal from 12 to 20 liter/min. R. I. Sinitskiy participated in this work. Orig. art. has: 1 table and 4 figures.

ASSOCIATION: none

SUBMITTED: 00 DATE ACQ: 26Feb64 ENCL: 00

SUB CODE: ML NO REF SOV: 000 OTHER: 000

Card 2/2

ZAYTSEV, K.I., kand. tekhn. nauk; SHAMOVSKIY, E.Kh., kand. tekhn. nauk; YAMPOL'SKIY, D.Z., inzh.; GORBAN', P.N., inzh. (gorod Zlatoust).

Consultations. Svar. proizv. no.1:47-48 Ja '65. (MIRA 18:3)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut po stroitel'stvu magistral'nykh truboprovodov (for Zaytsev). 2. Sibirskiy metallurgicheskiy institut (for Shamovskiy).

YAMPOL'SKIY, E.M.

Improving equipment opens new potentials in gypsum production. (MIRA 16:1)
Stroi. mat. 8 no.12:20-23 D '62.

1. Glavnyy inzh. Novomoskovskogo gipsovogo kombinata.
(Gypsum)

BLOKH, G.S., kand.tekhn.nauk; KOGAN, G.S., kand.tekhn.nauk; ZAGREBNEVA, A.V., kand.tekhn.nauk; YAMPOL'SKIY, E.M., inzh.

Obtaining new materials made of gypsum-cement-pozzolan binding material and organic fiber on cylinders. Stroi.mat. 8 no.11: 8-10 N '62. (MIRA 15:12)

(Building materials)

YAMP'OL'SKIY, E.M., inzh.; MACHUL'SKIY, F.F., inzh.; MUZGIN, S.S., kand. tekhn. nauk

Using self-propelled equipment in mines of the Novomoskovsk Gypsum Combine. Gor. zhur. no.4:6-10 Ap '65. (MIRA 18:5)

1. Novomoskovskiy gipsovyy kombinat (for Yampol'skiy, Machul'skiy).
2. Institut gornogo dela AN Kazakhskoy SSR (for Muzgin).

YAMPOL'SKIY, G.T.

YEVREINOV, Dmitriy Vsevolodovich; YAMPOL'SKIY, German Isaakovich; TIKHOMIROV, N.N., redaktor; GALAKTIONOVA, Ye.N., tekhnicheskiy redaktor

[Organizing automotive transportation of building materials] Organizatsiia avtomobil'nykh perevozok stroitel'nykh gruzov. Moskva, Nauchno-tekhn.izd-vo avtotransportnoi lit-ry, 1955. 55 p. (MLRA 8:10)

(Building materials--Transportation)